

# Release Notes

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## PD4 Information Model Version 0.3.1.0.b

### Release for Build 3b System Testing

March 22, 2013

These notes detail the changes made to the PDS4 Information Model and contained in Release 0310b. The purpose of this release is System Testing for Build 3b. The release includes an XML Schema file, Schematron file, data dictionary, and an information model document. This release reflects the changes made to address the problems found since Release 0300a and that were reported either via RFA or email.

#### Major Changes made since the release of Version 0.3.0.0.a

1. Ingest\_LDD is now the name of the local data dictionary schema; significant changes were made to the schema components; Ingest\_DD and Ingest\_LDDTool\* were deprecated.
2. Change the name of attribute external\_standard\_id to parsing\_standard\_id for Parsable\_Byte\_Stream classes
3. Change the name of attribute external\_standard\_id to encoding\_standard\_id for Encoded\_Byte\_Stream classes
4. Change the name of attribute external\_standard\_id to document\_standard\_id for the Document\_File class
5. Change name of Header\_Encoded to Encoded\_Header
6. Change name of name\_space\_id to namespace\_id
7. Update pattern for ASCII\_Date\_Time\_UTC and ASCII\_Date\_Time
8. Change "UnitOfMeasure\_" to "Units\_of\_"

#### Minor Changes made since the release of Version 0.3.0.0.a

1. Fix pds vs ops mismatch in OPS Product\_XML\_Schema
2. Clean up registry configuration file.
3. Remove classes subject\_area\_org, Node\_Area, Zipped\_Member\_Entry, Detector, IP\_Item\_Optional, TDO\_Others, TDO\_Structures, Boolean

4. Remove classes Product\_Node, Product\_Instrument, Product\_Instrument\_Host, Product\_Investigation, Product\_PDS\_Affiliate, Product\_PDS\_Guest, Product\_Target
5. Check that required files exist in the \data directory
6. Prototype vectors as data types; create vector\_cartesian\_3 for generic and three subclasses position, velocity, and acceleration - DDWG AI
7. Change name of observing\_system\_component\_type to type - PPI RFA\_260
8. Remove "European Space Agency" from node.name value list. It is an agency - ER
9. Remove maximum\_characters = 20 from ASCII\_Time - JSH
10. Remove minimum\_characters = 1 from ASCII\_Time - JSH
11. Remove Meteorology and Other, add Hygrometer as instrument type - DDWG
12. Add UnitOfMeasure\_Length as unit type for Vector\_Cartesian\_3\_Position - DDWG 10/4
13. Create UnitOfMeasure\_Acceleration; clone Velocity and square denominator - DDWG 10/4
14. Add UnitOfMeasure\_Acceleration as unit type for Vector\_Cartesian\_3\_Acceleration - DDWG 10/4
15. Remove the data type Float3Vector - DDWG 10/4
16. Remove the class vector\_velocity\_base - DDWG 10/4
17. Add Vector\_Cartesian\_3\_Pointing as a normalized unitless point vector - DDWG 10/4
18. Add version\_id to DD\_Attribute2 and DD\_Class2 - typo
19. Fix version id for DMDoc and LDDTool
20. Set cardinality of Discipline\_Area within the Product\_Context class to 0..1 - ER
21. Add submitter\_name (1..1) to dd\_attribute2 and dd\_class2 - DDWG 10/11
22. Add Russian as a permissible value to language in Terminological Entry - DDWG 10/11
23. Note preferred terminological entry (English) on ingest into DDDDB. - DDWG 10/11
24. Add "Julian Day" as unit of measure in UnitOfMeasure\_Time - DDWG 10/11
25. Add Ingest\_LDDTool2 as a root element. - DDWG 10/11
26. Add LDD\_version\_id to Ingest\_LDDTool2 - DDWG 10/11
27. Remove version\_override in command line - DDWG 10/11
28. Add nillable\_flag parsing and setting to LDDTool - DDWG 10/11
29. Allow attributes to be optional and required, nillable and not nillable in Ingest\_LDDTool2 - DDWG 10/04 - Currently allowed in model - no change
30. Check that lddtool input file name exists
31. Remove the XML Schema statement in the preamble that assigns the PDS namespace to the null namespace - Team
32. Allow unknown and inapplicable as values (does not use null reason)
33. Add terminological\_entry as optional for DD\_Class2 and DD\_Attribute2 - ER
34. Remove pds4\_merge\_flag from the Ingest DD and LDD schemas; use input parameter
35. Add 0..\* Internal\_References to DD\_Attribute2 and DD\_Class2 - DDWG 10/4
36. Change local\_identifier to name in Ingest\_LDDTool2
37. Remove pattern from ASCII\_LID; add new schematron rules - AR/RJ
38. Add the number of Field\_bit elements present in a Packed\_Data\_Fields - AI\_121025:3:JSH - IPDA - Build\_2C\_IPDA\_082
39. Add the value "Planetary\_Science\_Archive" to <Node>.<name> element - SH

40. Rename the ops schema to be pds; only create the pds schema - AI\_1209027:1:JSH
41. Have LDDTool input the input\_file name extension optionally (.xml) (check for upper and lower case) - DDWG 10/25
42. Add DD\_Association\_External to allow attributes from other namespaces, namespaceid, name, cards, and reference\_type (allow URI in header) - DDWG 10/25
43. Allow a choice between the two associations; order is the given sequence of dd\_associations - DDWG 10/25
44. Change cardinality of file\_area to 1..\* for Product\_Browse - ER
45. Add reference\_types browse\_to\_data and browse\_to\_thumbnail to pds:Product\_Browse/pds:Reference\_List/pds:Internal\_Reference - ER
46. Change cardinality of internal\_reference in investigation\_area to 1..\* - RJ
47. Add reference\_type - package\_compiled\_from\_package to Product\_DIP, SIP, and AIP - jsh
48. Fix order of processing\_level\_id - ar/jsh
49. Apply consensus agreement on Observing System Component - Syncing up component types with product\_context - Apply consensus agreement. - AI\_121025:5:Ar/ER/JSH -
  - change Analyst to Naked\_Eye; use "Other" to describe
  - change Ground-based\_Laboratory to "Laboratory"; use "Facility" to describe
  - change Ground-based\_Observatory to "Observatory"; use "Facility" to describe
  - change Ground-based\_Telescope to "Telescope"; use "Telescope" to describe
  - remove PDS\_Archived\_Data
50. Remove context\_to\_bundle, context\_to\_collection, context\_to\_document, context\_to\_resource as reference\_types from pds:Product\_Context/pds:Reference\_List/pds:Internal\_Reference. - ER
51. Change collection\_types schema to xml\_schema and spice to spice\_kernel - DS Document Review
52. Fix typos - change Array\_Base to Array; change Table\_Character to table in Product Collection definition; change Field to Field everywhere
53. Change cardinality for the PDS\_Affiliate.team\_name attribute from 0..1 to 0..\* - ER/SH
54. Remove offending ">" from ?xml-model declaration in PDS4\_PDS\_\*.xml, the generated schema label - ER
55. Add the reference\_type "collection\_to\_personnel" to Product\_Collection/Reference\_List/Internal\_Reference context. - ER
56. Add the reference\_type "document\_to\_investigation" to Product\_Document/Context\_Area/Investigation\_Area/Internal\_Reference - ER
57. Add the reference\_types "document\_to\_instrument" and "document\_to\_instrument\_host" to Product\_Document/Context\_Area/Observing\_System/Observing\_System\_Component/Internal\_Reference - ER
58. Add the reference\_type "document\_to\_target" to Product\_Document/Context\_Area/Target\_Identification/Internal\_Reference - ER

59. Add resource\_to\_instrument, resource\_to\_instrument\_host, resource\_to\_investigation, resource\_to\_target to  
pds:Product\_Context/pds:Reference\_List/pds:Internal\_Reference.reference\_type - SH
60. Modify LDD schema: deprecate Ingest\_DD and Ingest\_LDDTool; rename Ingest\_LDDTool2 to Ingest\_LDD
61. Modify DD\_Class: deprecate DD\_Class; rename DD\_Class2 to DD\_Class;
62. Modify DD\_Attribute: deprecate DD\_Attribute; rename DD\_Attribute2 to DD\_Attribute;
63. Modify DD\_Permissible\_Value; rename DD\_Permissible\_Value to DD\_Permissible\_Value\_Full; rename DD\_Permissible\_Value2 to DD\_Persmissible\_Value.
64. Modify DD\_Value\_Domain; deprecate DD\_Value\_Domain; rename DD\_Value\_Domain2 to DD\_Value\_Domain; remove DD\_Value\_Domain\_Full as subclass of DD\_Value\_Domain
65. Add ASCII\_Date\_Time to DD\_Value\_Domain\_\*.value\_data\_type - SH
66. Fix missing NSSDC in IM - DS
67. Change name of Header\_Encoded to Encoded\_Header - DS
68. Change name of name\_space\_id to namespace\_id - DS
69. Add Acceleration and Pointing to Vector.type - DS
70. Combined has\_table\_field\_grouped into has\_group\_field\_binary and has\_group\_field\_character; simplified CHOICE processing - jsh
71. Fix cardinalities of file\_area\_observational, file\_area\_observational\_supplemental, file\_area\_browse, File\_Area\_Service\_Description to match schema "choice" - DS
72. Change data type of formation\_rule for DD\_Value\_Domain\_\* from ASCII\_Short\_String\_Collapsed to ASCII\_Text\_Collapsed
73. Update the ASCII\_Boolean definition with "The allowed values are 'true' and 'false'." - ER
74. Remove ASCII\_Identifier - Simpson Issues from Document Realignment.
75. Change definitions of author\_list and editor\_list as per resolution of PDS4 SR Open Issue #4 - DS
76. Change pdf-a to pdf/a in Document\_File.external\_standard\_id, Encoded\_Image.external\_standard\_id - DDWG
77. Change cardinality of DD\_Association.local\_identifier from 1..1 to 1..\* - ER
78. Add the attribute description to the Collection class with cardinality 0..1 - DDWG
79. Change the name of attribute external\_standard\_id to parsing\_standard\_id for Parsable\_Byte\_Stream classes - DDWG
80. Change the name of attribute external\_standard\_id to encoding\_standard\_id for Encoded\_Byte\_Stream classes - DDWG
81. Change the name of attribute external\_standard\_id to document\_standard\_id for the Document\_File class - DDWG
82. Add the imaging Band Bin and Band Bin Set to the model - ER
83. Change "UnitOfMeasure\_" to "Units\_of\_" - DDWG 11/10
84. Write "unit:" and permissible values for any attribute with a unit\_of\_measure; add to IM, DD - RS
85. Change reference\_frame to reference\_frame\_id - MG
86. Update Spice Kernel type value meanings - BS
87. Remove many underscores from permissible values, including some units\_of - jsh

88. Fix product\_class in DD so that in a product definition its value is the product class name - AR
89. Change ASCII\_AnyURI.character\_constraint from UTF-8 to ASCII - DA team
90. Change node\_area to discipline\_area in glossary - DS
91. Add CCSDS Communication Protocols as a Encoding type to Encoded\_Byte\_Stream - PSA
92. Removed "INF" and "-INF" as limits on ASCII\_REAL - Document Alignment Team
93. Removed 2\*\*31-1 as limits for various data types - Document Alignment Team
94. Make the Document attribute order as it was prior to release 3a. - AR
95. Change unit: to valid\_units: in IM and DD - Document Alignment Team
96. Remove all (maximumValue "2147483647") (minimumValue "-2147483648")
97. Add min and max values 0 and 360 respectively to Telescope.logitude - AR
98. Remove the following as permissible values for Field\_Binary.data\_type - ER/AR  
ASCII\_AnyURI, ASCII\_DOI, ASCII\_Identifier, ASCII\_LID, ASCII\_LIDVID, ASCII\_VID,  
ASCII\_Directory\_Path\_Name, ASCII\_File\_Name, ASCII\_File\_Specification\_Name
99. Add schematron rule to check that band\_bin\_set is used for the axis named band – ER
100. Change the cardinality of object\_length from 0..1 to 1..1 in Header - AR/DS/EN
101. Change observation\_area to context\_area in Product\_Spice\_Kernel - BS
102. Change association subject\_area to context\_area - JSH
103. Change cardinality of observation\_area.primary\_result\_summary from 0..1 to 1..1 - AR
104. Move units\_of\_measure definition and testing schema to schematron - RJ
105. Update pattern for ASCII\_Date\_Time\_UTC and ASCII\_Date\_Time - DDWG
106. Change data type for Time\_Coordinates.start\_date\_time and stop\_date\_time to  
ASCII\_Date\_Time\_UTC - DDWG
107. Change data type of Citation\_Information.keyword to UTF8\_Short\_String\_Collapsed -  
DDWG
108. Change data type of Citation\_Information.description to UTF8\_Text\_Preserved - DDWG
109. Change attribute definitions (mean, median, maximum, minimum, and  
standard\_deviation) for Object\_Statistics and Field\_Statistics to text from D. Simpson - DDWG
110. Update \*\_standard\_ids and value\_meanings – DDWG
111. Changed definition of bit\_mask as per Dick Simpson - AR - RFA\_Build3a\_038
112. Added Display\_2D\_Image to Array\_2D\_Spectrum and Array\_2D\_Map cardinality 0..1 -  
RFA\_Build3a\_036
113. Changed definitions for Identification\_Area.title, Citation\_Information.description  
(abstract) - AR (Preamble classes, 12/15/2011, annotated\_label.doc)
114. Changed definitions for target\_Identification.name, alternate\_designation, type,  
description based on Annes notes - AR (Preamble classes, 12/15/2011, annotated\_label.doc)
115. Added logical\_identifier schematron rules to IM specification and DD document - JSH
116. Added temperature and pressure as values, with value meanings, to data\_regime - LH
117. Replaced Internal\_Reference schematron rules with new versions of the rules - RJ
118. Added Identification\_Area.logical\_identifier schematron rules - RJ
119. Added reference\_type target\_to\_document for  
pds:Product\_Context/pds:Reference\_List/pds:Internal\_Reference - RJ
120. Maked Investigation.stop\_date nillable - RJ

121. Fixed order of start\_date, stop\_date, description in Investigation\_Area - RJ
122. Required Citation\_Information.description for Product\_Bundle, Product\_Collection, and Product\_Document (Used Schematron) - DDWG 5/14
123. Fixed the following \*\_standard\_ids: 7-Bit ASCII, delete ISIS History, PDS ODL 2, PDS DSV 1, Pre-PDS3, VICAR1, VICAR2, Drop - File System, ???TEXT, Remove HTML, UTF-8, J2C - JPEG2000 compressed, HTML 2.0, HTML 3.2, HTML 4.0, HTML 4.01 - DDWG 3/14
124. Added Group\_Field\_Delimited to Group\_Field\_Delimited and make it a choice - DDWG 3/14
125. Replaced longitude and latitude in Telescope with telescope\_latitude and telescope\_longitude - DDWG 3/14
126. Added maximum\_value\_exclusive\_flag and minimum\_value\_exclusive\_flag to DD\_Domain\_Value and DD\_Domain\_Value\_Full - DDWG 3/14
127. Switched Array\_2d\_Map from V1.0 to V1.1 - Imaging
128. Moved Band\_Bin and Band\_Bin\_Set from Imaging section in IM to Product section - ER
129. Added specification message for each schematron rule. - JSH
130. Changed name space id to namespace id, description to definition, removed colon (pds:) in DD and elsewhere – DS
131. Added valid\_maximum, high\_instrument\_saturation, high\_representation\_saturation, valid\_minimum, low\_instrument\_saturation, low\_representation\_saturation to special\_constants, cardinality 0..1 - ER
132. Updated schematron - context="/\*" - RJ
133. Updated schematron - Citation\_Information/pds:description required in Product\_Bundle, Product\_Collection, Product\_Document, Product\_Text\_File - RJ
134. Updated schematron - Citation\_Information/pds:description > 50 and < 5000 characters - RJ
135. Updated schematron - ASCII\_Date\_Time\_UTC add check for "" for nilReason - RJ
136. Updated schematron - allow for optional attributes with enumerated lists - RJ
137. Updated UML diagrams and section headings in IM – jsh
138. Made start\_date\_time and stop\_date\_time in Data\_Set\_PDS3 nillable - RJ
139. Removed Unit\_Of\_\* definitions from schematron and added Units\_Of\_\* simpleTypes back to schema - ER
140. Added additional context <reference\_type> value to Product\_Collection and Product\_Bundle - AR